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The ‘in-between’ of learning: (Re)valuing the process of learning

Andrea R. English

Introduction

Understanding how human beings learn is not unnaturally considered essential for anyone in the role of educator. However, there are different conceptions of learning, and these can have various implications for how we conceptualize teaching.

This chapter focuses on the ways in which Dewey’s work has influenced contemporary thinking about what learning is, and about how learning processes begin. Specifically, the chapter explicates Dewey’s conception of the vital role of *struggle* in learning.

In common discourse around education and learning today, *learning* is often taken to refer to the outcome or ‘take-away’ of a process, rather than the process itself. But this emphasis on results can lead us to lose sight of the importance of the process of learning. How is it that we take in a new idea, gain a more complex understanding of something, or come to transform our perspective on how our actions affect others? In other words, how do we learn? In this chapter, I focus on Dewey’s notion of learning, connecting it not only to concepts in the history of philosophy of education from before his time, but also to our contemporary philosophical ideas of learning. I aim to illuminate a particular aspect of learning processes, which I refer to as the ‘in-between’ of learning. As I will show, Dewey helps us think about this vital aspect of learning, which can get lost if we only think of learning as outcomes.

Before turning to Dewey, as well as to others who influenced his thinking, it is worth providing an initial idea of what I mean by the term the ‘in-between of learning’. This term is used to describe a realm of thinking and experience in which we are between knowledge and ignorance, ability and inability, that is, between old and new ways of seeing and being in the world (English, 2013). Being ‘in-between’ can be difficult; it arises from being

challenged by something new and unfamiliar, and therefore can involve a certain type of struggle to try to understand connections between old and new knowledge and ability. In this chapter, I discuss how we can conceive of the 'in-between' of learning as a space for educative and productive struggle, and what the practical role of educators is in creating such educative spaces for struggle.

The notion of 'struggle' itself can be problematic when we apply it to educational contexts and discourse. Much depends on how we interpret the term 'struggle'. For example, a teacher might follow a radical child-centred approach to teaching, viewing someone struggling as meaning he or she is *not* learning. Accordingly, in practice such a teacher might think it is best to make things easier for students who appear to struggle with a subject, so that struggle does not arise or is immediately ameliorated. On the other hand, a teacher following a more traditional teacher-centred model of teaching might contend that struggling is a necessary part of acquiring knowledge, and then in practice, interpret struggle as a 'necessary' component for when students are required to memorize information and repeat back received facts. Yet another attitude to struggle may be found among teachers who, in theory believe that it is important for learners to experience certain kinds of challenges through hands-on learning, but in practice find it difficult to see a child struggle as a result of such challenges. In these cases, they might not know how to respond, or how to determine whether the child is overwhelmed, in a way that could be destructive rather than productive. The impetus might be to release the child from the struggle, in order to safely avoid any possible, harmful suffering.

In my view, we need to recognize that struggle is important, but we also need a way to differentiate between productive and destructive forms of struggle. In this chapter, I address ways in which this conceptual distinction can be made in a manner that can inform educational practice, building on the idea of the 'in-between' of learning. I show how the 'productivity' of a struggle within the 'in-between' of learning is connected to one's ability to self-critically reflect and sustain new avenues for inquiry. In the first section, I use examples from the works of particular thinkers who influenced Dewey – namely, Plato, J.J. Rousseau, and J.F. Herbart – with the aim of providing insight into how human learning processes begin as discontinuous moments in our experience. In the second section, I turn to Dewey's notion of learning in order to draw out the idea of a productive space for struggle. In the third section, I take up ideas in our contemporary discourse in philosophy of education to highlight a view of learning as a transformative process, and address teacher practice. I close the chapter with considerations of how

the ideas of learning and teaching discussed in relation to the ‘in-between’ connect to the ability to foster democratic learning environments, and point to directions for further research.

Torpedo shocks, false judgements and inner struggle: Plato, Rousseau and Herbart on discontinuity along the path of learning

In all learning, the learner must encounter something new, different and as yet unfamiliar – a new object, idea or perspective – otherwise it would hardly be learning, but rather a reiteration of what was already known. But what does this encounter with difference and otherness look like? Here, I turn to Plato, Rousseau and Herbart to discuss how our encounters with the new, as part of learning processes, entail a certain kind of interruption in our experience of the world. These moments of interruption can be considered experiential ‘discontinuities’, essential to the process of learning. In these moments we experience a limit to our present knowledge or ability,¹ which tells us that our ideas or ways of acting are untenable; and thus such experiences are often mingled with doubt, discomfort or frustration. As we will see, Plato considers this experience of limitation in the context of cognitive learning, while Rousseau gives us an example of discontinuity in the realm of sensory formation, and with Herbart we can examine how to understand discontinuity in the realm of moral learning. In my discussion of each of these thinkers, I point to the embodied dimensions of discontinuity in experience that will prove significant in my later discussion of the ‘in-between’ realm.

Plato’s dialogue the *Meno* tells us something counter-intuitive about the path of learning, namely that it involves a movement from knowing to not-knowing. This may at first appear an odd idea. Certainly, when we commonly conceive of learning, we think of it as going forward, a process of knowledge acquisition. Even educators talk about learning as a progression. But these common conceptions hide something about the path of learning as involving an unfolding or undoing, a movement away from what you know, or thought you knew, to the realization that you do not know.

In the *Meno*, Socrates endeavours to resolve a paradox that he and his interlocutor, Meno, discuss at the outset of the dialogue, namely, that it appears that we only have two states of being: we are either in a state of knowing, and therefore we do not need to search for knowledge, or we are in a state of ignorance, and so we would not know what to search for. It would seem from this thought experiment that searching for something new, something we do not yet know – *learning* – is neither possible, nor

necessary. To demonstrate the contrary, Socrates tells Meno to call in a young slave boy to see if he can learn how to calculate the area of a square. The boy is posed a series of questions by Socrates, while Socrates draws different lines and figures to help him towards a visual image of what he is being asked for. The boy believes to have the right answers to the questions, until he is confronted with a question that puzzles him, and which he cannot answer, proclaiming: 'By Zeus, Socrates, I do not know' (Plato, 1997: 84a).

If we set aside Plato's conception of learning as recollection or *anamnesis* (that is, a process of remembering what we knew before birth), the dialogue reveals something significant about human learning processes – that there is a moment in our experience in which 'we know that we don't know', and that this moment follows our prior conception, which we had (up to that point) believed to be true. The state of knowing that one does not know is the recognition that one was previously guided by a misconception.

But there is more that we can learn from the dialogue. It tells us something about what the experience of learning can feel like; it tells us that there is an embodied dimension to it. Socrates describes the boy's experience of first believing to know, and then recognizing that he does not know, as a feeling of 'difficulty', a shock that makes him 'as perplexed and numb as the torpedo fish does' (ibid., 84b). The description of the boy's experience (granted, it is coming from Socrates via Plato, and not from the boy himself) implies that the movement from what one believed to be true to what one knows is not true is more than just the cognitive acknowledgement that one lacks certain knowledge. Rather, this movement can combine with the discomfort and difficulty of the feeling of being stuck and not knowing how to move on.

What we can take from Plato's dialogue is that in learning we come to question what we have taken for granted, and in that process we come to recognize misconceptions. This process is not a smooth move forward from one truth to the next new one, as if we continuously add new layers of knowledge onto existing ones, nor is it simply a replacement of an old idea with a new one, such that the old one disappears without us feeling the difference. Rather, the dialogue reveals two important ideas that can help us understand the learning process.

The first is that in learning there is a type of 'undoing', in which certain ideas get taken apart and are shown as insufficient for the new situation; in learning processes, we experience what we can call an 'interruption' in our experience of the world – a discontinuity in learning. It arises from our encounter with something new and unexpected, and can lead us to the recognition that we have arrived at a limit to knowledge or ability (English,

2013). Second, the dialogue reveals that the experience of interruption, in which we encounter the world and realize we do not know how to move on, can be painful, like a shock to the system.

The dialogue does not tell us, however, how this interruption in our experience becomes part of a productive struggle, in which we are trying to figure out the possible relation between what we know and what we do not know, between prior knowledge and the new unfamiliar object or idea we have encountered. Rather, the boy comes to new knowledge with Socrates guiding him to the right answer in a way that is too leading to regard it as an illustration of the boy truly arriving at the new knowledge himself.

From the Enlightenment era, Jean-Jacques Rousseau provides us with a different example of learning, one that equally reveals discontinuity in the learning process, but is not guided by a teacher like Socrates; rather, it involves the child's direct interaction with the world. These moments occur in Rousseau's *Émile*, where the author points to the fact that human processes of sensory formation include moments of perplexity and disillusionment. He describes the fact that we can observe small children, before they are able to speak or crawl, stretch out their arms to grab objects within their field of vision but still beyond their reach. In Rousseau's account, this phenomenon is not a case of the child commanding the object to come to him or her, but rather an example of the human experience of learning to judge distance: 'it is merely that the object first seen in [the child's] brain, then before his eyes, now seems close to his arms, and he has no idea of space beyond his reach' (Rousseau, 1979: 64).

For Rousseau, such moments when the world does not conform to our expectations can cause perplexity and discomfort (as he notes, the child will cry upon not reaching the object), but they are educative: in such moments, we learn 'the difference between self and not self' (ibid.). Rousseau's example highlights the fact our interaction with the world involves the experience of what a modern German philosopher of education, Käte Meyer-Drawe, calls an experience of *Widerständigkeit der Dinge* – the 'resistance of things' (Meyer-Drawe, 1999). When the world resists us and defies our expectations, we experience an interruption and can recognize that we may have an incorrect impression of the world. The interruption tells us that something has gone wrong with our perceptions and that some idea or belief about ourselves or about the world needs modification or correction.

With Rousseau's example of learning in the realm of sense perception, we can begin to identify an intermediate space that lies between the interruption in our experience – that is, the moment when the world has

signalled to us that things are not the way we thought them to be, and we cannot in fact 'reach the object' – and the new way of understanding that allows us to move beyond our misconceptions. In the case of the child not being able to reach an object, Rousseau suggests to educators that they bring the child to the object, rather than bring the object to the child, or ignoring the child's interest in the object. His solution is part of his underlying belief in the *perfectibilité* of human beings – which can be translated as their capacity to learn.² By bringing the child to the object, the teacher is respecting the child's capacity to learn by showing the child what it is like to move towards the object for himself, so that he learns to judge distance and learns that, as soon as he can crawl, he can move himself towards the object (Rousseau, 1979).

What this example does not yet tell us is what this space *between* the interruption of a false judgement and the recognition of a new way of seeing the world might feel like. How do we experience the space between the moment of our recognition that the world is 'not us' and our newly established relation to the world? What is involved in the movement between the recognition that the world does not conform to our way of viewing it, and the new way of perceiving things that takes account of the world that is 'not self'? In other words, what is our experience of the path of learning? As I discuss below in relation to Dewey, we can conceive of this space as an 'in-between' realm in which we struggle to gain new understandings.

In his discussion of learning in the moral realm, J.F. Herbart, the nineteenth-century German philosopher of education, offers insight into the educative meaning of resistance that we experience in the path of learning to recognize and respect others. Herbart provides us with a concept of struggle that has meaning for how we learn to make decisions, including moral decisions. Like Rousseau, Herbart believed in the *perfectibilität* (in German, *Bildsamkeit*)³ of human beings, that is, the idea that human beings are self-questioning, learning beings, who can question their own motives and call into doubt their plans for action. For Herbart, learning in the realm of morality involves what he called an 'inner struggle' (Herbart, 1902: 200–1), in which we enter when we encounter a 'blind-spot' in our interactions with others, and realize that we have a choice to move away from self-interested actions towards actions that respect others.

Such situations occur in everyday life, for example when we are in a rush to get somewhere but realize that someone needs our help. These moments are considered moral dilemmas, which require us to become self-reflective, to 'stop and think' and question what we are doing, and consider whether changing our actions is necessary. To take an example of children

learning, we might say that two girls are playing with a ball and agree that each gets to take a turn throwing it into a net. At some point, one girl decides she does not want to give the ball to the other girl and continues to play on her own. The girl who does not have the ball becomes frustrated and reminds her friend of their agreement. The girl who kept the ball now has the opportunity to go against self-interest and act respectfully towards her friend.

Herbart is saying that such moments are part of the process of learning to act ethically and morally; they cannot be avoided. In his theory of moral education, Herbart argues that teachers should not force moral rules on children without the children experiencing moral situations in which they come to understand certain rules. Children must learn to be in a state of ‘inner struggle’, for those are the moments in which they are between right and wrong in the grey areas of thinking. This realm of the ‘in-between’ provides them with the opportunity to shift their perspective towards recognition of others.

Herbart highlights the meaning of discontinuity in moral learning as an experience of a break with oneself – one’s views, one’s values, one’s guiding ideas. He also provides us with an initial way of thinking about struggle in moral learning that connects to Dewey’s idea of struggle as part of all learning, to which we will now turn. For Herbart, just as for Plato and Rousseau, there is an affective, embodied dimension to our experiences of limitation: the inner struggle can threaten ‘mental’ and ‘bodily health’ (Herbart 1902: 204). Moments of discontinuity that lead to struggle are not necessarily productive; they can be destructive, a distinction to which we will return to later. But, more positively, Herbart also points up the connection between discontinuity and the idea of productive struggle in moral and social learning: the struggle marks the point at which there is an opening in an individual’s experience, a space in which s/he has the choice to break with his or her past choices and act differently in the future. Only on account of this discontinuity in learning does one’s choice to think and do otherwise arise.

Being ‘in-between’: Dewey on the struggle of learning

John Dewey’s thinking on education reflects the ideas of Plato, Rousseau, and Herbart discussed above; but it also extends them in ways that can further our understanding of learning, specifically of the role of struggle. Dewey’s position on learning and education is intertwined with his sharp criticism of the theories of education that he believed to be the predominant guiding practices in schools of his time. One of his central criticisms was of

the view that the learner was a passive recipient of knowledge, who passively absorbed pre-packaged knowledge that was handed down or 'transmitted' from the teacher or the book. For Dewey, such ideas of learning were based on a false notion of the mind as a 'blank slate', in which learning occurred through direct acts of the intellect, separated from the activity of the body. In contrast, in Dewey's view, there was a reciprocal relationship between mind and body, an interaction affecting how we experience the world and learn.

By analysing Dewey's conception of learning, we can identify a space that lies between the moment of interruption in our experience – the moment when our encounter with the world signals to us that our existing knowledge and ability do not suffice to deal with the new situation and we experience resistance from the world – and the new knowledge or ability that we may come to acquire. This is an educative space for exploration and experimentation, the 'in-between' of learning, in which we recognize that old ways of thinking and acting are no longer valid but have not yet found new ones (English, 2013). Before analysing this 'in-between' as a space of productive struggle, it is first worth discussing a few significant aspects of Dewey's notion of learning more generally.

In Deweyan thinking, the question of how we learn can only be addressed if we understand how we experience the world. In *Democracy and Education*, Dewey defined experience as having both an active side, in which we 'do' something in the world, and a passive side, in which we 'undergo' the consequences of our actions (Dewey, 1916: 146). To more fully grasp this notion of experience, we can look at an example Dewey provides. He asks us to imagine a boy touching a flame. There are two possible results of the child's interaction with the object. The first is that the boy touches the flame and then just walks away. In that case, the boy will have 'done' something in the world, namely touched the hot object, but he will not have had an *experience*, because he ignored the response from the world, which would have been the feeling of heat as a burn. To call the interaction an 'experience' requires that the boy realize, upon touching the flame, that his activity is connected to the pain of a burn (ibid.). For Dewey, when we connect what we *do* in the world to what we *undergo* on the basis of how the world responds to our actions, 'we learn something' (ibid.).

It is likely no coincidence that Dewey, like Rousseau, takes such a simple human experience to illustrate a point about human learning. Both thinkers wanted their readers – educated adults – to be able to strip back the layers of knowledge and complex experiences in order to grasp what was at the heart of learning, and which formed the basic interaction between self and world – between 'self' and 'not self', or other. This interaction

with difference or otherness is part of all learning; indeed, it provides the basis for learning, for if we interact with the world and others without any confrontation with difference and newness we would not be learning, but rather confirming what we already believe, know or are able to do.

Although it may seem common sense to say that in learning we are taking in something new, Dewey makes clear that to truly grasp the meaning of learning, we have to consider the *nature* of our interaction with the new. If educators accept that learning, in its educative sense, is something more than mere memorization of facts to be recited back with accuracy, how is it that an individual can begin with one idea and end up with another, when the new idea is not a result of repeating what one was told, but rather a result of a transformed understanding of oneself and one's relation to the world. In other words, how is it that we learn?

Looking back at Dewey's example of the child and the flame, we can see that for Dewey, experience and learning were intertwined. Experience is not acquired when we simply try things out without reflection on what happened in consequence, nor is it had when we merely suffer unexpectedly, without understanding of what was involved in leading to that suffering (Dewey, 1916: 146–7). In a true experience, connected to a learning process, we must make the connection between self and world, between what we do and what we undergo as a consequence of our actions. Put another way, experience is not experience unless it involves *thinking*. We have to cognize the difference between what we intended or expected to occur as a result of our actions, and what actually happened when we acted. Thinking, or more specifically thinking *reflectively*, in experience means asking: 'What happened when I tried to do something particular in the world? What changed? To what extent did the world defy my expectations?'

In pointing out how thinking is part of experience, Dewey guides us towards understanding the path of learning as involving productive struggle (English, 2013). He distinguishes between two types of experience – trial-and-error experience, and reflective experience. Both types involve thinking. In trial and error, or what Dewey calls 'cut-and-try experience', we try something and when it does not produce the expected result, we try again until we reach our aims (Dewey, 1916: 151f.). We make the connection between what we did and what happened in consequence to a limited extent: we learn that a particular action and consequence are connected, but we do not learn *how* they are connected.

In a reflective experience we proceed differently. We do not just mentally note moments when our actions did not lead to an expected result; rather, these moments serve as the starting point for reflectively exploring

our relationship to the new and unexpected; we struggle to understand the connection between self and world in a way that we had not previously understood prior to the interaction. Reflective experiences are structured as an exploration of these connections. They involve initial experimentation in the world to the point that we encounter the unexpected and fall into 'doubt, perplexity, or confusion', a consideration of what knowledge and ability we have that might help us deal with our state of doubt, a formulation of new questions and possible solutions to the problem that has arisen, and the formulation of a plan of action to 'test', either imaginatively or in action, the validity of our new ideas (compare Dewey, 1916: 157).

Both trial-and-error and reflective experiences involve our experience of limitation, and so in both cases we experience a discontinuity, a break or disruption in our experience that occurs because what we tried did not yield what we expected. In both cases, this break incites in us a state of doubt, uncertainty or the like. However, whereas in trial-and-error experience we merely pass over such doubt and confusion in order to try again with the hopes of a better outcome, in a reflective experience, our reflective activity serves to hold us in a state of doubt; it holds us in 'suspense' (ibid., 155). In reflection, we inquire into the nature of our uncertainty and perplexity and analyse it to try to understand *why* we are perplexed. As Dewey writes, the perplexities serve to guide us, they 'suggest certain ways out. We try these ways, and either push our way out, in which case we know we have found what we are looking for, or the situation gets darker and more confused – in which case, we know we are still ignorant' (ibid., 155–6).

In reflective experiences, whatever it was that the learner underwent in his or her interaction with the world that induced a state of difficulty or doubt now becomes the object of the search, of the inquiry (ibid., 155). It is in the process of searching that the learner finds him- or herself in the 'twilight zone of inquiry', as Dewey phrased it – the 'in-between' realm of learning (ibid.) – in which the learner has the opportunity to deal with problems of thinking and learning that lie *between* knowledge and ignorance, ability and inability.

For Dewey, learning involved experiencing and finding the limits to our existing knowledge and beliefs, and so it necessarily involved *thinking* and trying to understand these limits. It involved a break with oneself as a moment of doubt, in which what one thought was true and valid was called into question, prompting questions such as: 'What is it that I thought before that now does not seem to fit? What ideas were guiding me that now seem in need of modification? Is it my ideas, or something in the world, or both, that need to change?

Reflective experiences place value on such moments of doubt, uncertainty and the like – that is, on the discontinuities in our experiences. These moments are signs that we have reached a limit to our knowledge and ability and must seek a modification or correction to our ways of thinking or acting in the world if we want learn from the difference and otherness we have encountered. Our search for what is needed is not easy; it involves us in a kind of struggle in which we are wrestling with new ideas and trying to make sense of what has happened. For Dewey, this struggle, in which learners encounter limitations and seek their own way out, is an indispensable aspect of all learning processes; it is constitutive of learning:

Only by wrestling with the conditions of the problem at first hand, seeking and finding his way out, does he think ... If he cannot devise his own solution ... and find his own way out he will not learn, not even if he can recite some correct answer with one hundred per cent accuracy.

(Dewey, 1916: 167 and 188)

Dewey's notion of learning as reflective experience is learning in its educative sense: it sees the human experience of limitation as essential to what it means to learn. The experiences of limitation and discontinuity force us to call into question the knowledge and beliefs that we previously took for granted as true. Our struggle to understand this experience of limitation can only be considered *productive*, rather than *destructive*, if it leads to self-reflection and self-questioning of the taken-for-granted (English, 2013). Such acts of self-reflection, of reflection on what we know and do not know and on our relation to the world, are acknowledgements that the *other* matters in our experience, that the recognition of the connection between self and other is part of what it means to be human.

Transformative learning: Contemporary perspectives on the value of the 'in-between'

A contemporary philosopher of education, Nicholas Burbules, has made the point that in learning we can experience different kinds of *aporia* – that is, different kinds of experiences of having 'no path'. He writes that in Plato's *Meno*, the *aporia* is one of 'epistemic emptiness' (Burbules, 2000: 179). The boy in the dialogue is paralysed by the shock, and paralysis means there is no 'educational movement' (ibid., 182). But, as Burbules notes, a different sense of *aporia* is possible, the sense of being lost, which means that there are too many paths, 'too many choices'; 'to be stuck' or 'in between' here is not equivalent to the absolute emptiness of paralysis, but an in-between that

contains possibilities.⁴ This distinction between being stuck with no way out and being stuck because of multiple possibilities points to the fact that the discontinuous moments in learning, which challenge us and interrupt our established way of being, are not necessarily productive; they do not necessarily lead to reflective learning processes. They can be destructive, leading us to become so overwhelmed that we cannot move and prefer to run from the experience (English, 2013). We see this happen in schools, when students feel so challenged by a subject that their principal association with it is a sense of fear, rather than interest, curiosity or inspiration. What does this danger mean for a teacher who values the discontinuities in learning and the 'in-between' moments of learning that they create?

Valuing discontinuities in learning means *in practice* that a teacher aims to initiate productive interruptions in a students' learning process by creating situations that make learners *productively* confused, perplexed, or puzzled. As John Passmore says, making learners 'puzzled' connects with promoting their ability to become critical thinkers (compare Passmore, 1967; see also Burbules, 2000: 182). The aim of initiating such discontinuities is to create openings in which they can explore new ways of thinking and of acting reflectively as part of the process of transformation of self and world (English, 2013: 133). Such transformations involve what Meyer-Drawe calls 'a painful turn-around', which comes about because in confronting the limits of one's knowledge and ability one 'not only breaks with one's prior knowledge, but also with oneself as a person' (Meyer-Drawe, 2008: 206). Transformative learning implies a confrontation with our 'blind-spots' so that they are exposed (Kerdeman, 2003: 296). This confrontation is one that broadens our horizon of thought and experience – it expands our ways of thinking such that we take in the 'other' in our judgements and plans of action; in this sense, the 'other' changes us.

A student's experience of difficulty can also be difficult, and even painful, for a teacher. In seeing a student struggle, the teacher's ultimate need to provide an answer, or to strategically guide the student to an answer, can become a *felt* need to relieve the student's pain of difficulty. This felt need can arise despite a teacher's recognition that giving the answer will not assist the student's learning process; not knowing how to address the student's struggle can make the teacher feel vulnerable. However, if teachers understand the student's thinking processes that led him or her down the path they are now on – a path that, for the student, may appear to have no way out – then teachers can formulate new questions and new activities to help the student address these moments and become self-reflective about the nature of the experiences of limitation. To do this in a way that supports

the learner in continuing on the path of learning, rather than abandoning it, there need to be enough resources and information to help learners begin to ask new questions and find new spaces for inquiry. The teacher's role is vital in supporting students to engage in productive struggle in a way that leads them away from feeling just 'stuck' and instead towards a new more self-reflective search.

For learners to arrive at new knowledge through the path of reflective learning processes, such as those that Dewey described, is different to arriving at right answers arbitrarily, or by relying on an authority figure. The new knowledge or 'product' is different because the process to get there is different. In a reflective learning process, the new knowledge and ability gained is coupled with the increasing ability to ask questions, seek out resources, and think critically about one's own views and those of others. Knowledge becomes connected to understanding, more than accumulated facts, and rather connected to all the other questions, errors, resources, and other knowledge encountered along the path of learning. Such processes of critical self-reflective inquiry support social and moral learning, just as much as cognitive learning; they involve not only questioning oneself, but listening to and questioning the views and actions of others.

Finding the balance between over-challenging learners and under-challenging them is one of the central difficulties in teaching; it makes teachers vulnerable to the unexpected that can arise from students' responses to these challenges. Doing it well is part of mastering what Dewey calls the art of instruction:

A large part of the art of instruction lies in making the difficulty of new problems large enough to challenge thought, and small enough so that, in addition to the confusion naturally attending the novel elements, there shall be luminous familiar spots from which helpful suggestions may spring.

(Dewey, 1916: 164)

Part of gaining expertise in teaching is learning to understand the difference between *productive*, educative struggles, and those that can be *destructive*, i.e. leading a learner to become overwhelmed, stuck without suggestions of ways forward, and discouraged from developing new avenues for thinking (see English, 2013).

Conclusion: Struggle, 'blind-spots' and democratic learning environments; or, can we forget about Dewey?

In light of the 2016 centenary of the publication of Dewey's *Democracy and Education*, it is worth asking whether we really need Dewey's thoughts on education any more. In teacher-education programmes, particularly in the UK, it is more common to hear about Piaget and Vygotsky than it is to hear of Dewey. These two thinkers also had concepts related to discontinuity in learning. For example, Piaget's notion of disequilibrium can be seen as conceptually a moment of discontinuity. Also, Vygotsky's concept of the 'zone of proximal development' implies that learners, when given the right kind of problem, face a challenge of a certain kind, but one that they are capable of solving with some guidance. However, these thinkers do not go far enough. Dewey, in my view, more than others placed value on the educative role of the unexpected. It challenges us, creates obstacles for us, and it can – with the right support, especially from good teachers – become part of reflective, educational struggles that lead to transformed understandings of self and world.

Dewey provides us with an educative way to understand the 'in-between' of learning as a space for productive struggle. The struggle arises out of one's confrontation with a blind-spot – with the limit of knowledge and ability – and provides the opportunity to learn. The danger is that educators, policy-makers, or members of the general public come to misinterpret what makes a struggle 'productive' and therefore educationally valuable. Notably, without reference to Dewey, curriculum policy documents in the mathematics education community in the United States have begun to use the concept of 'productive struggle' to mean something positive and necessary in maths learning (NCTM, 2014). While I see this as a good development, the usage of the term lacks a strong conceptualization in these documents, and tends to imply that 'productive' refers to the 'product' or outcome of the struggle. Taken too far in this direction, such thinking could again lose sight of the 'in-between' of learning as itself a valuable space for exploration and self-critique.

The testing culture that is on the rise around the world unfortunately aligns most clearly with those forms of teacher-centred instruction that Dewey so sharply criticized. It devalues the struggle as a space of student thinking; it devalues the process of learning. And so it tells teachers to focus on the outcomes and get students to these outcomes as quickly and efficiently as possible. But, as Plato, Rousseau, Herbart, Dewey and others remind us, it is on the path of learning that we encounter our blind-spots –

what we do not know, could not foresee, cannot yet do, cannot understand – and this encounter can lead us to new understandings that incorporate difference and otherness into how we think about ourselves.

The choice to turn towards our blind-spots and reflectively deal with them is not easy. For Dewey and other thinkers, this choice cannot be left to chance. Rather it must be supported by teachers who understand the process of learning. It must also be supported by educational environments that provide learners with resources, books, materials, games, and interactions with adults and peers in navigating through the space of struggle, so that they do not become stuck to the point of paralysis, but rather learn to question their ideas and reflect on their own knowledge and ability and that of others. That need relates to what Pádraig Hogan calls ‘venturesome environments for learning’, that is, environments in which each participant can ‘venture his or her considered thoughts, without fear of belittlement if what is ventured is faulty’, and which are open to ‘new questions’, ‘new perspectives’ and ‘new possibilities for learning’ (Hogan, 2013: 238–9). Such environments are necessary for the space of struggle to become productive. With Dewey, we can call such learning environments ‘democratic’ because they recognize the individual as part of a community, in which there is discussion and cooperation not only about established knowledge and ability, but also about what we do not know and cannot do, as an individual or as a group.

Democratic learning environments recognize both that the experience of blind-spots *cannot* be avoided and that they *should not* be avoided. However, the *affective* and *embodied* dimensions of discontinuity and struggle should not be overlooked. The difference between productive and destructive struggle is difficult to judge in practice, and therefore it is hard to establish exactly how to initiate productive struggle within the context of concrete learning environments, in which learners’ sometimes very different learning histories come together. This topic needs to be continuously contemplated by researchers, but also be made part of the discourse in teacher education.

Notes

¹ This discussion is part of a long-standing tradition of thought on the nature of experience, and its constitutive negativity; see English, 2013; see also Benner and English, 2004; Benner 2003.

² Rousseau’s notion of *perfectibilité* is translated in Dewey’s *Democracy and Education* as ‘plasticity’ and ‘educability’, terms that are central to Dewey’s concept of growth (see Chapter 4 of Dewey, 1916).

³ The German notion of *Bildsamkeit* is related to *Bildung*, meaning formative education – an interplay between self and world from which we learn (Humboldt, 2001).

⁴ Compare 182f where he distinguishes these from two other kinds of *aporia* – see Burbules, 2000.

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